

June 14, 2022

Submitted via email to Opie.jodie@epa.gov

RE: U.S. EPA's Specific Objection to Ohio EPA's Reissuance of the City of Euclid, Ohio NPDES Permit

To Whom It May Concern,

The Northeast Ohio Regional Sewer District (NEORSRD) appreciates the opportunity to participate in the public comment period on the U.S. Environmental Protection Agency's (EPA) November 2, 2021 Specific Objection to the Ohio EPA's reissuance of the City of Euclid's National Pollutant Discharge Elimination System (NPDES) Permit (OH0031062). NEORSRD is a ratepayer-funded political subdivision of the State of Ohio responsible for wastewater treatment facilities, regional stormwater management, and interceptor sewers across Cleveland and 61 suburban communities. NEORSRD's mission is to provide progressive regional management of sewage and stormwater that protects the environment and serves our community. NEORSRD is also responsible for operation and maintenance of a combined sewer system with over 100 permitted outfalls. We are an interested stakeholder because U.S. EPA's Specific Objection to the proposed phosphorus effluent limits for the Euclid Wastewater Treatment Plant (WWTP) may set a concerning precedent that will have a significant impact on all WWTPs that discharge into Lake Erie, including NEORSRD's, with no appreciable gain to water quality and public health.

The NEORSRD is committed to improving water quality in Lake Erie and has been successfully improving water quality and public health since 1972. NEORSRD and our ratepayers have stood by this commitment with significant and sustained investments. This commitment is why NEORSRD is investing \$3B to reduce combined sewer overflows (CSOs) and why we strive to produce the highest quality effluent from our three (3) WWTPs every day. It is why we created a Regional Stormwater Management Program to address flooding and erosion through the investment of \$44M annually and why we voluntarily created the Member Community Infrastructure Program and have awarded more than \$45M over the last 6 years to improve local sewer infrastructure in our service area. **Regulators, policymakers, and the regulated community collectively need to continue to wisely invest limited public resources into efficient and effective work that results in measurable water quality benefits. That is not the case with U.S. EPA's Specific Objection letter at issue and thus the reason for this comment letter.**

The proposed phosphorus limit in U.S. EPA's Specific Objection letter is not necessary for water quality protection and improvement. It is unreasonable to assume that a 99% reduction from a facility that contributes only 0.11% of the load is necessary. In addition to being unnecessary, this

limit is not technically feasible and is not attainable for NEORSD or any other current wastewater treatment plant in Ohio or in the country.¹ **NEORSD requests that U.S. EPA withdraw its Specific Objection and allow Ohio EPA to issue the City of Euclid NPDES permit as final, retaining the 1.0 mg/L monthly limit for phosphorus.** Our request is based on the following points.

1. Lake Erie is a complex ecosystem with nutrient inputs from various point and non-point sources. The Central Basin is impacted by flows from the Western Basin.

Lake Erie is the shallowest and warmest of the Great Lakes and receives 80% of its water from the upper Great Lakes, 10% from precipitation, and 10% from Lake Erie Tributaries. Much of the water enters the lake from the Western Basin, flows east into the Central Basin and eventually to Lake Ontario. Due to its relatively small size and shallow character – as compared to the other Great Lakes – Lake Erie has a relatively short water residence time of 2.6 years. Based on over 10 years of study, it is evident that high levels of nutrients, specifically phosphorus runoff that is delivered during spring storms from non-point sources in the Western Basin, is the primary cause of the harmful algal blooms experienced in the Western Basin.² Due to the general flow direction of Lake Erie, algal blooms that originate in the Western Basin often move to the east, contributing to intermittent water quality concerns in the Central Basin.

2. Significant phosphorus reductions have already been achieved by point sources.

A. WWTPs have already controlled phosphorus. Additional control will not result in meaningful water quality improvements.

NEORSD, like many other Lake Erie WWTPs, has made significant efforts since the 1970s to reduce phosphorus discharges to Lake Erie. This work by point sources is evident in the annual phosphorus load reductions to the Lake from 29,000 metric tons to less than 10,000 metric tons as shown in Figure 1. In fact, today all Ohio Lake Erie WWTPs combined contribute **only 5%** of the total load to Lake Erie.

Over the last 30 years, NEORSD has reduced the annual phosphorus load from its WWTPs by over 60% as shown in Figure 2. NEORSD's recent efforts to optimize phosphorus discharges from its three WWTPs are driven by NEORSD's 2012 NPDES permits which included requirements for implementing Best Management Practices (BMPs) to further optimize phosphorus removal within existing infrastructure. NEORSD developed and implemented a plan to optimize phosphorus reduction at each WWTP primarily through the use of additional ferric chloride. These efforts enable NEORSD to consistently produce high quality effluent with a phosphorus concentration less than the applicable permit requirements at all three WWTPs. NEORSD consistently operates well

¹ 2011. Water Environment Research Foundation. Nutrient Management Volume II: Removal Technology Performance and Reliability.

² See *Recommended Phosphorus Loading Targets for Lake Erie*, Annex 4 Objectives and Targets Task Team Final Report to the Nutrients Annex Subcommittee, May 11, 2015.

below permit limits for all parameters including phosphorus, removing an estimated 883 tons (88%) of the phosphorus coming into the WWTPs in 2021.

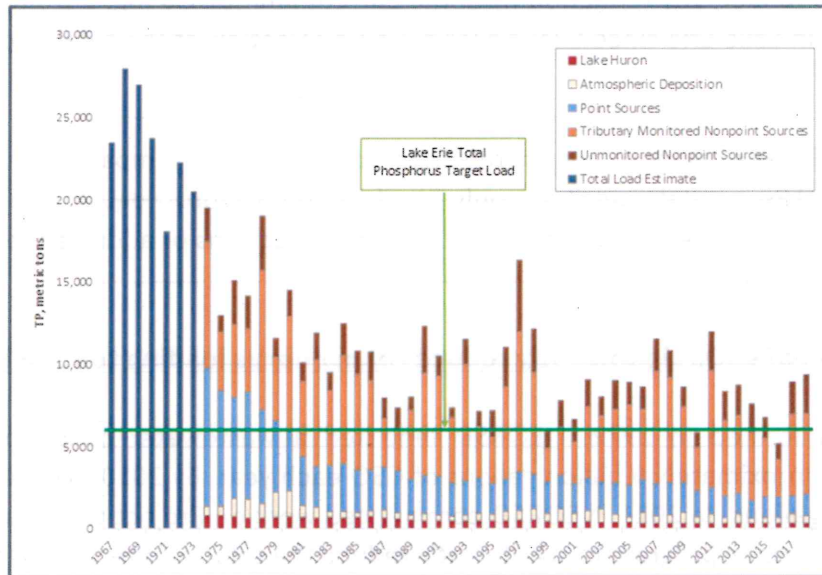


Figure 1. Lake Erie Total Phosphorus Loading By Major Source³

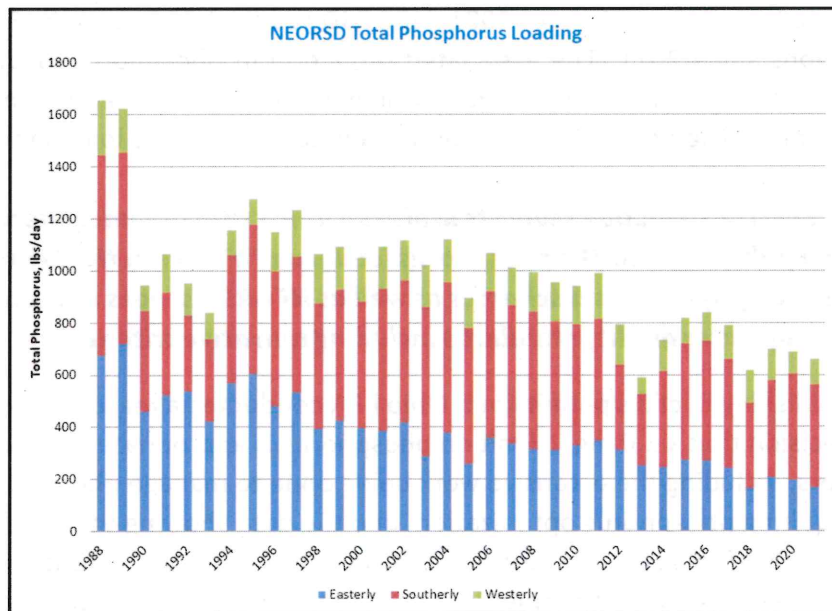


Figure 2. NEORSDD WWTP Annual Phosphorus Loading 1988 - 2021

³ Adapted from: Baker et al., 2014, Maccoux et al., 2016, and BlueAccounting.org (accessed 12/3/2019).

The U.S. EPA's proposed limit of 0.0086 mg/L for the City of Euclid is unachievable given current technology.⁴ Even if this limit were technically feasible and based on the assumption that 0.0086 mg/L is essentially zero, it would only reduce the phosphorus load to Lake Erie by 11 metric tons or 0.11%. In fact, any reduction from the current limit of 1.0 mg/L would have no impact on water quality in Lake Erie since Euclid's load is a tiny fraction of the total phosphorus load to the lake.

WWTPs, as a category, are not the driver for water quality impairment in Lake Erie. All Ohio Lake Erie WWTPs in total contribute only 5% of the phosphorus load to the Lake. Reducing this percentage would not result in meaningful nutrient reductions or address the nutrient problem in Lake Erie.

B. Control of CSOs significantly reduces phosphorus loading to Lake Erie.

When formed in 1972, NEORSD inherited a wastewater collection system that was discharging approximately 9 billion gallons of CSO each year. By 2010, NEORSD had reduced this to 4.5 billion gallons. In 2011, NEORSD commenced work on Project Clean Lake, a \$3 billion, 25-year Consent Decree program to significantly reduce the total volume of CSOs to Lake Erie and its tributaries by an additional 4 billion gallons by 2036 (98% capture). Project Clean Lake includes a combination of large diameter tunnels, treatment plant improvements and expansion, and green infrastructure. To date, NEORSD has constructed four (4) of the required seven (7) tunnels – three (3) of which are fully activated. As of 2021, NEORSD reduced CSOs to Lake Erie by an additional 1.7 billion gallons since 2011. The associated reduction in phosphorus loading from NEORSD-owned CSOs is 5 metric tons in a typical year, which represents a 34% reduction from 2008 loading. By 2036, NEORSD will achieve a 90% reduction in annual phosphorus loading from CSOs.

3. U.S. EPA's Specific Objection requests arbitrary limits that are unconnected to water quality and public health. The phosphorus load from WWTPs in the Central Basin, which includes the City of Euclid's discharges as well as NEORSD's, does not contribute to an exceedance of water quality standards including narrative criteria.

In establishing Euclid's permit limit, Ohio EPA conducted a reasonable potential analysis to support its decision that a 1.0 mg/L limit on phosphorus is appropriate. Its decision was based on multiple factors, including the extensive work being done to manage phosphorus, the language of the permit requiring phosphorus optimization, and the data showing that Euclid's contribution to the phosphorus load in Lake Erie is but 0.11%. In the reasonable potential analysis, Ohio EPA acknowledges that there are impairments associated with nutrients within the Lake Erie Central Basin and Central Shoreline assessment units; however, these impairments are for microcystin, not phosphorus or algal blooms. Ohio EPA's analysis found that keeping the monthly phosphorus limit

⁴ Calculated monthly concentration limit based on the U.S. EPA's proposed monthly loading limit of 0.72 kg/day and the City of Euclid WWTP design flow of 22 MGD.

in the permit at 1.0 mg/L, continuing to implement the phosphorus mitigation efforts, and completing a phosphorus optimization study are appropriate measures for Euclid's WWTP and that **Euclid's WWTP neither causes nor contributes to water quality impairment in the Central Basin Open Waters or Central Shoreline assessment units.**

In its Specific Objection letter, however, U.S. EPA states that "OEPA must revise the proposed permit to include effluent limitations for outfall 001 necessary to achieve Ohio's (a) narrative criterion for nutrients that cause nuisance algae growth and (b) public drinking water supply use designation for Lake Erie Central Basin during the growing season." **This requirement is contrary to Ohio EPA's data-supported conclusion that Euclid's WWTP neither causes nor contributes to impairment associated with nutrients.**

In support of this Specific Objection, U.S. EPA relies on a 2021 guidance document that was prepared without data from any of the Great Lakes, titled *Ambient Water Quality Criteria to Address Nutrient Pollution in Lakes and Reservoirs*. Lake Erie – like the other Great Lakes – is a complex ecosystem that is dramatically different in size, depth, and flow patterns than traditional inland lakes and reservoirs discussed in the document. Therefore, this guidance document is not applicable to the Great Lakes. However, U.S. EPA uses this guidance document to make a conclusory statement that "[t]he levels of microcystin in a water body such as the Lake Erie Central Basin Open Water assessment unit is related to the levels of phosphorus in the water." The relationships between nutrients, bloom formation, and cyanotoxin are extremely complex and site specific. There are many factors that influence the production of microcystin, not just phosphorus. It is known that too much phosphorus can cause increased growth of algae and large aquatic plants, which can result in decreased levels of dissolved oxygen. While high levels of phosphorus can also lead to algae blooms that produce algal toxins which can be harmful to human and animal health, other nutrients such as nitrogen and the right environmental conditions may also be necessary to cause microcystin production. Therefore, U.S. EPA's statement that the levels of microcystin present in the Central Basin are directly related to the levels of phosphorus in the water is an oversimplification based on guidance that is not applicable to the Great Lakes.

U.S. EPA's Specific Objection calls for Euclid to have a 0.0086 mg/L phosphorus limit – a 99% reduction. This limit is arbitrary and not technically achievable for Euclid or any other current WWTP in the country. Through the Specific Objection, U.S. EPA will cause a major policy change that would likely be applied to all other Region 5 WWTPs. NEORSD requests that U.S. EPA allow Ohio EPA to continue the work it is doing to set NPDES permit limits based on reasonable potential analyses based on best available information.

4. U.S. EPA's action effectively sets a new phosphorus limit. This is not in accordance with the Clean Water Act.

To set phosphorus limits for WWTPs other than the 1.0 mg/L called for in State regulations for Lake Erie dischargers, the processes set forth in the CWA and State regulations must be

followed. A TMDL is called for under the Clean Water Act to address impairments by evaluating the loading capacity of the waterbody and to allocate that load among different pollutant sources so that the appropriate control actions can be taken, and water quality standards achieved. The TMDL process is important for improving water quality because it serves as the link between water quality standards and implementation of control actions designed to attain those standards. The NEORSD supports Ohio EPA in allowing science to determine the appropriate loading for the Central Basin – through the TMDL process. NEORSD also supports Ohio EPA's current prioritization of TMDLs in the Western Basin of the Lake.

5. Efficient and effective investments in water quality improvements are necessary to protect public health. Nonpoint sources will provide the next significant and cost-effective reductions in phosphorus to Lake Erie.

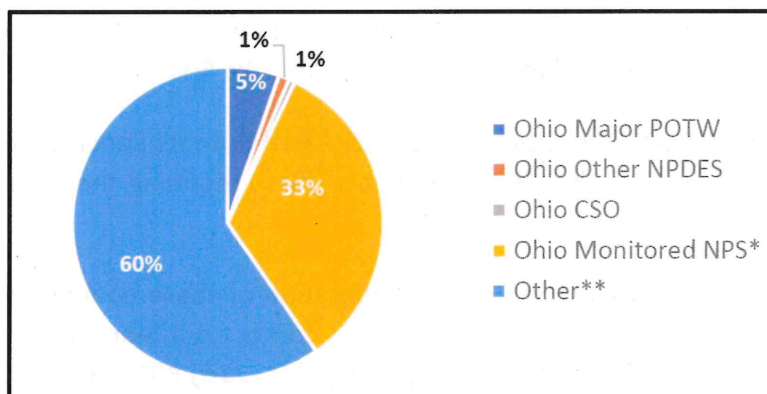
Lake Erie has a nutrient problem. Addressing this problem requires that we make meaningful changes – not just drive permit limits lower. Regulated entities like NEORSD and the City of Euclid have been optimizing nutrient removal since before 2008 and have achieved significant reductions in loading to the Lake. However, further reductions cannot be made without significant capital investment that will **not** result in meaningful nutrient reductions or address the nutrient problem in Lake Erie.

In 2014, NEORSD evaluated the feasibility of achieving further reductions in phosphorus discharges (e.g., monthly limits of 0.30 mg/L and 0.15 mg/L) at its WWTPs – two orders of magnitude higher than the U.S. EPA originally proposed limit for Euclid. Achieving these very low monthly averages requires significant capital improvements beyond chemical optimization such as ballasted flocculation, tertiary filtration, or a combination of both. It is estimated to cost hundreds of millions of dollars for the Southerly WWTC to meet a monthly limit of 0.15 mg/L. This significant investment would result in a very insignificant reduction in the annual phosphorus load to Lake Erie – less than 1%.

The District's Westerly WWTP is similar in many ways to the City of Euclid's WWTP. The two WWTPs have similar design flows with Westerly at 28 million gallons per day (MGD) and Euclid at 22 MGD. Both facilities are located along Lake Erie, discharge to Lake Erie, and have significant site constraints making the addition of new infrastructure difficult and expensive. And although they employ different treatment processes, both remove phosphorus through chemical addition and have comparable phosphorus concentrations in their final effluent. Despite optimization efforts, Westerly is unable to meet a monthly limit of 0.5 mg/L. Based on a recent study, it is estimated to cost tens of millions in capital costs to reliably achieve a 0.5 mg/L monthly phosphorus limit at Westerly. This would be a significant investment to only reduce the annual phosphorus load by 5 metric tons (0.05% of the total load to Lake Erie) – at a cost of \$2,000 per pound of phosphorus. This is not an efficient or effective measure to reduce phosphorus in Lake Erie as it would have no benefit to water quality.

Not all WWTPs can achieve the same phosphorus levels, as the ability to achieve various levels is based on the raw wastewater characteristics and the treatment technologies used at each WWTP, not the size of facility. Further, given that the total loading to Lake Erie from **all Ohio WWTPs is now only 5% of the total load to the lake**, further reducing phosphorus discharges from WWTPs will have little to no meaningful benefit to water quality in Lake Erie. Many WWTPs, like NEORSD, have reached a point of diminishing returns where additional phosphorus removal cannot occur without the installation of new advanced treatment technologies. These additional improvements are not without their own environmental costs from the greater use of chemicals, increased energy demands, and increased solids production. Therefore, regulators and policymakers must carefully consider the lack of benefits to water quality that would be achieved from lower nutrient levels from optimized WWTPs compared to nutrient reduction strategies from other sources.

Ohio has done extensive work to define the loads from different sources and define strategies to reduce the loads with an initial focus on WWTPs and CSOs. The benefits of Ohio EPA's programmatic changes are evident in the insignificant role WWTPs and CSOs now play in the total phosphorus loading to the lake (5% and 1%, respectively). As illustrated in Figure 3, the driving force behind impairments in Lake Erie are non-point source phosphorus loads (93%).



*Includes all area evaluated in Ohio's Nutrient Mass Balance Study

**All other sources to Lake Erie, including unmonitored nonpoint source loads from Ohio

Figure 3. Role of Ohio's Major POTWs in the Total Phosphorus Load to Lake Erie's Central Basin from Water Year 2013 - 2017.⁵

Absent a TMDL for Lake Erie and given the magnitude of issues in the Western Basin from non-point sources and the link to lake-wide impairments, Ohio EPA is appropriately focused on phosphorus reductions from non-point sources in the Western Basin to improve water quality in the Lake as a whole. There are significant, much more cost-effective opportunities to obtain meaningful reductions in phosphorus loading from these non-point sources that persist.

⁵ Figure 2-2 from Attachment 2 of the NPDES Fact Sheet for the City of Euclid NPDES permit (3PE00003*LD) dated April 12, 2021.

June 14, 2022

Conclusion

Solving the phosphorus problem in Lake Erie requires a holistic approach examining all sources and allocating loads appropriately to achieve water quality standards – through a TMDL, not in a five-year permit cycle. NEORSD appreciates the efforts by U.S. EPA to help solve the phosphorus problem in Lake Erie. However, NEORSD does not agree with the proposed approach for the following reasons including:

- Lake Erie is a complex ecosystem with nutrient inputs from various point and non-point sources. The Central Basin is impacted by flows from the Western Basin.
- Significant phosphorus reductions have been achieved by point sources. Additional control will not result in meaningful water quality improvements.
- U.S. EPA's Specific Objection requests arbitrary limits unconnected to water quality and public health. The phosphorus load from WWTPs in the Central Basin, which includes the City of Euclid's discharges as well as NEORSD's, does not contribute to an exceedance of water quality standards including narrative criteria.
- U.S. EPA's action effectively sets a new phosphorus limit. This is not in accordance with the Clean Water Act.
- Efficient and effective investments in water quality improvements are necessary to protect public health. Nonpoint sources will provide the next significant and cost-effective reductions in phosphorus to Lake Erie.

Therefore, NEORSD requests that U.S. EPA withdraw its Specific Objection and allow Ohio EPA to issue the City of Euclid NPDES permit as final, retaining the 1.0 mg/L monthly limit for phosphorus.

NEORSD appreciates U.S. EPA's consideration of these comments. Should you have any questions or concerns, please do not hesitate to contact our Manager of Environmental, Health and Safety, Robin Halperin at halperinr@neorsd.org or (216) 881-6600.

Kind Regards,



Kyle Dreyfuss-Wells
Chief Executive Officer

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